Precipitation Activities in the GEO Water Activity WA-01

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1. Overall Activity Goal:

In the 2012-2015 GEO Work Plan the primary focus for precipitation is on providing data sets and associated information for use in other areas of the Work Plan.

2. Successes in 2013-2014:

- The CGMS/International Precipitation Working Group (CGMS/IPWG) again revised tables providing basic characteristics and access information for precipitation data sets, focusing on those that are publicly available, routinely produced, (quasi-global, and long-term.) See *http://www.isac.cnr.it/~ipwg/data/datasets.html*.

- Improved user-oriented information on the IPWG web page by
  - revising algorithm description pages and
  - developing a "users' guide".

- Introduced "Satellite Precipitation" and "Precipitation Datasets" sections into the Wikipedia "Precipitation" page. We had to follow Wikipedia standards:
  - written in general, neutral style and
  - edited from non-work accounts.

2. Satellite transitions in 2013-2014:

- The MADRAS sensor on the joint French/Indian satellite mission Megha-Tropiques is presently not functional, while SAPHIR data continues.
- The joint NASA/NOAA satellite mission Suomi National Polar-orbiting Partnership (SNPP), launched 28 October 2011, was declared operational 1 May 2014.
- The GCOM-W1 AMSR2 was declared operational on 13 May 2014.
- The joint NASA/JAXA GPM Core Observatory satellite was launched into a 65° inclination orbit on 28 February (JST; 27 February in the U.S.).
- The sun-synchronous U.S. DMSP F19 satellite was launched 3 April 2014.
- The EUMETSAT Metop-A experienced a 57-day outage, 26 March–21 May 2014.

4a. Plans for 2014-2015:

- Several groups continue to develop schemes for averaging gridded precipitation over any area described by a generic Graphical Information System (GIS)-standard shapefile. Shapefiles for river basins and political subdivisions are posted in freely available sources on the web.

- The CGMS IPWG is working to create a central repository for, and routinely update graphics from, the validation statistics computed for its validation sites in Austalia, Japan, the continental U.S., South America, Western Europe, and South Africa.

- We are working to involve precipitation data archive sites more directly in addressing GEO/GEOSS data format/service requirements.
  - Each GEO/GEOSS data system seems to champion a different standard and put the burden on the data producers to conform.
  - I was surprised to get a fairly indifferent answer from GEOWOW.
  - Please let me know of user communities who are interested in getting precipitation data!

- We are pushing the GEOSS Common Infrastructure (GCI) on duplicated and fragmentary dataset descriptions.

4b. Plans for 2014-2015:

- "Day 1" GPM products will be released over the next 9 months.

- U.S. and Japanese teams are developing improved algorithms for combined-sensor products that take advantage of GPM and CEOS-PC data:
  - Integrated Multi-satellitE Retrievals for GPM (IMERG),
  - next-generation Global Satellite Map of Precipitation (GSMaP).

- The 7th IPWG Workshop is planned for 17-21 November 2014, Tsukuba Space Center, Tsukuba, Ibaraki, Japan. [new dates]

5. Linkages with other GEO activities:

- We still struggle to really make contact with the rest of GEO. See above.

6. Contributions to GEO infrastructure:

- Numerous precipitation data sets are registered in the GEO Portal, but it is not clear that this has resulted in improved access for users. See above.

- "Our GEOSS data" is incorrect phrasing for just hosting metadata or data linkages.

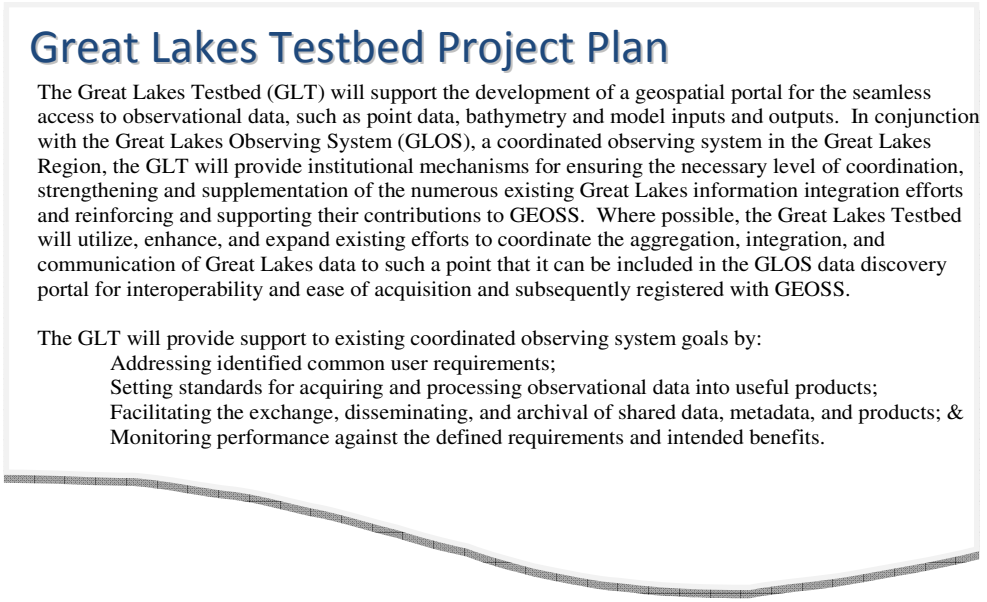
GEO-Great Lakes
Past, Present, and Future

12/02/2014

Co-Chairs
Gail Faveri, Environment Canada
Norm Grannemann, US Geological Survey

Past

- Started 2009 with a Testbed Charter
- GLOS became a GEO-Participating Organization
- GLOS GeoNetwork metadata catalogue developed and registered with GEOSS
- Late 2013 GEO-Great Lakes established with USGS, EC, GLOS, NOAA, NRCan, USACE, CSA as partners



Great Lakes Testbed Project Plan

The Great Lakes Testbed (GLT) will support the development of a geospatial portal for the seamless access to observational data, such as point data, bathymetry and model inputs and outputs. In conjunction with the Great Lakes Observing System (GLOS), a coordinated observing system in the Great Lakes Region, the GLT will provide institutional mechanisms for ensuring the necessary level of coordination, strengthening and supplementation of the numerous existing Great Lakes information integration efforts and reinforcing and supporting their contributions to GEOSS. Where possible, the Great Lakes Testbed will utilize, enhance, and expand existing efforts to coordinate the aggregation, integration, and communication of Great Lakes data to such a point that it can be included in the GLOS data discovery portal for interoperability and ease of acquisition and subsequently registered with GEOSS.

The GLT will provide support to existing coordinated observing system goals by:

Addressing identified common user requirements;
Setting standards for acquiring and processing observational data into useful products;
Facilitating the exchange, disseminating, and archival of shared data, metadata, and products; &
Monitoring performance against the defined requirements and intended benefits.

Need to grow the GLOS Metadata Catalog, the data management plan and publicize our existence

Present Process

Systematic process for identifying, prioritizing, and registering datasets relevant in the GEO-Great Lakes metadata catalog: http://slrfvm.glos.us/geonetwork/srv/eng/main.home.

Establish webpage: www.glos.us/geo-greatlakes

http://www.glos.us/geo-greatlakes/

Search

Featured Links

- GEO Great Lakes Factsheet
- GeoNetwork Great Lakes Metadata
- About GEOSS
- GEO Great Lakes Listserve
- Add Your Data/Metadata to GEO Great Lakes

Partner Pages

- Environment Canada Great Lakes
- GLOS Data Portal
- Great Lakes Information Network (GLIN)
- International Joint Commission (IJC)

Projects

- Evaporation Stations
- NOAA/GLERL Cumulative Impact Assessment (CIA) Dashboard (*pending*)

About Us

GEO Great Lakes is part of the Global Earth Observation System of Systems (GEOSS). GEOSS is a coordinating and integrating network of observing and information systems. The GEO GL team **supports data collaboration efforts between the United States and Canada in the Great Lakes Region**.

Representatives from Environment Canada, the National Oceanographic and Atmospheric Administration, US Environmental Protection Agency, US Geological Survey, and others work to make bi-national datasets **discoverable** (easy to find), **transparent** (easy to understand) and **interoperable** (easy to use). These needs are met through application of internationally accepted standards that ensure that the data are accurate, consistent and verified.

GEO Great Lakes helps fulfill public policy and strategic initiatives that advance data exchange:

- Great Lakes Water Quality Agreement
- International Joint Commission's Adaptive Management Task Team and follow-ups to the Upper Great Lakes Study
- Coordinating Committe on Great Lakes Basic Hydraulic and Hydrologic Data
- Great Lakes Observing System
- Great Lakes Trilateral Commission
- National Ocean Policy and the Regional Ocean Partnership
- ...and many more

How We Can Support Your Efforts

Data Access

Promotion

GEO Great Lakes

Coordinated Observing System Goals of GEO-Great Lakes

- Promote standards for accessing and processing
- Facilitate the exchange, dissemination, and archiving
- Advise on identified common user requirements
- Monitor performance
- Provide data, institutional resources and relevant support
- Utilize existing mechanisms for data standardization, management, storage and delivery.

A Great Lakes-wide Data Management Plan

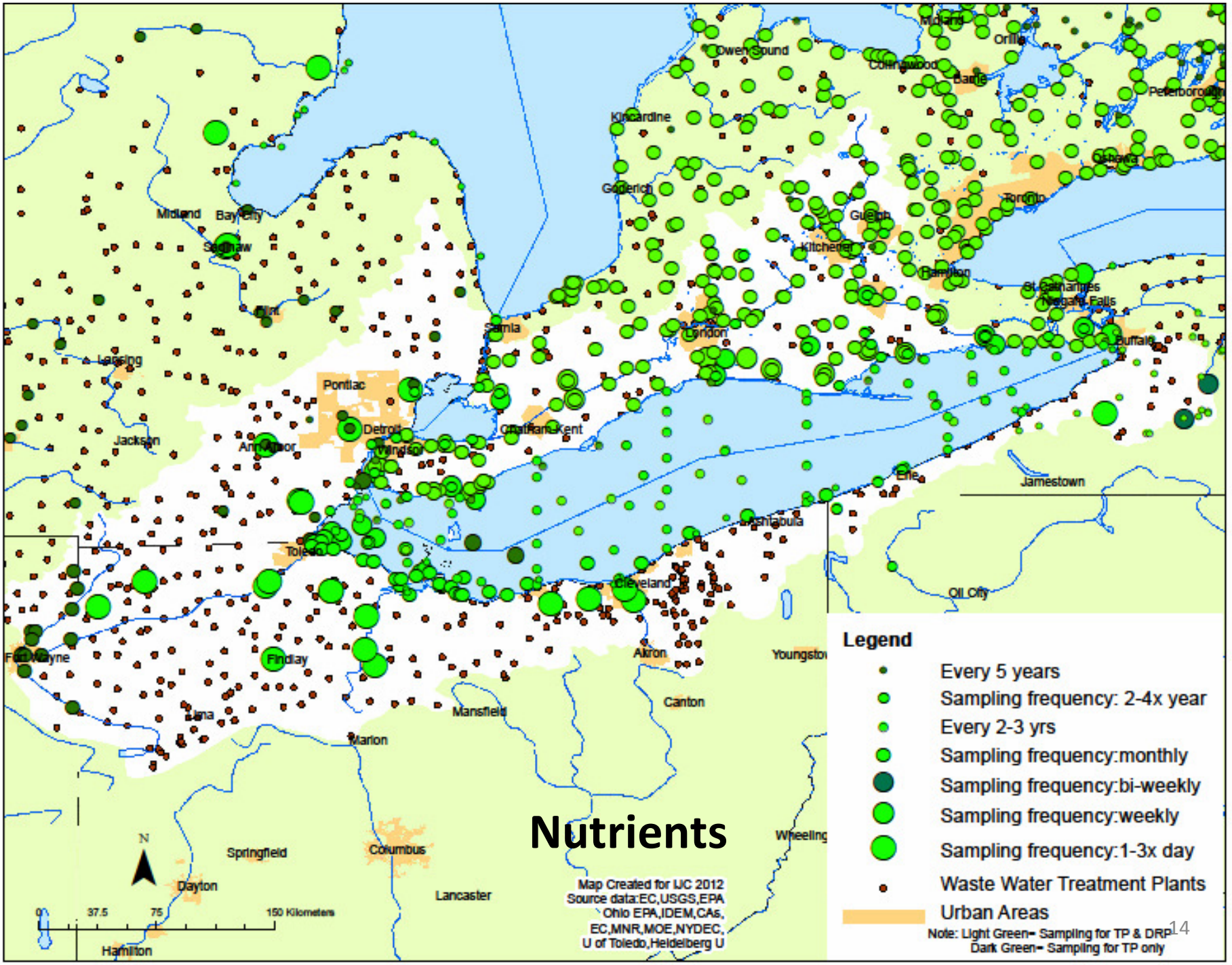
- Developed and used by partners in guiding their contributions to GEO-Great Lakes including:
  - Information **architecture** requirements for ensuring critical technology standards
  - Information management **protocols** for allowing data search, retrieval, distribution and use
  - Information management **governance** (e.g. data stewards) for ensuring on-going storage, maintenance and updating.

Outcome: Datasets

- Build list of candidate datasets from convenient sources
  - GEO-Great Lakes
  - CGLG/GLOS Foundational Hydrologic Datasets
  - GLOS Enterprise Architecture Report
  - Potential IJC Indicators

Outcome: Foundational Datasets

- Consider five: GEOSS + 1
  - Beach health
  - Ice
  - Groundwater
  - Water levels
  - Nutrients


Nutrients
Legend
Every 5 years
Sampling frequency: 2-4x year
Every 2-3 yrs
Sampling frequency:monthly
Sampling frequency:bi-weekly
Sampling frequency:weekly
Sampling frequency:1-3x day
Waste Water Treatment Plants
Urban Areas
Note: Light Green= Sampling for TP & DRP
Dark Green= Sampling for TP only
Map Created for IJC 2012
Source data:EC,USGS,EPA
Ohio EPA,IDEM,CAs,
EC,MNR,MOE,NYDEC,
U of Toledo,Heidelberg U
N
0
37.5
75
150 Kilometers
Owen Sound
Kincardine
Goderich
Midland
Bay City
Saginaw
Flint
Lansing
Pontiac
Detroit
Windsor
Jackson
Ann Arbor
Sarnia
London
Chatham-Kent
Kitchener
Guelph
Toronto
Hamilton
Oshawa
Peterborough
Orillia
Barrie
Buffalo
Niagara Falls
St. Catharines
Erie
Jamestown
Ashtabula
Cleveland
Oil City
Akron
Youngstown
Canton
Mansfield
Marion
Findlay
Toledo
Fort Wayne
Lima
Springfield
Dayton
Columbus
Lancaster
Wheeling

Future: Next Steps

- Find funding sources
- Develop the Great Lakes-wide data mgmt. plan
- Incorporate nutrients as proof of concept
  - Continue to work through (selected) sources to prioritize
    - Heidelberg College datasets one potentially attractive option because of possible GLRI DMAC follow-up
- Incorporate water level data
  - Also, some other foundational hydrology datasets
- Formalize and publicize efforts